

Chapter 4. Coordination, Collaboration and Consultation

4.1 Introduction

This chapter includes a description of the USDA, Forest Service, Feather River Ranger District and Plumas National Forest contributors providing leadership for this project and those dedicated as interdisciplinary team (IDT) members. Major responsibilities included coordination of the environmental analysis process, public participation and review, documentation and resource expert review of the EIS under the provision of the *National Environmental Policy Act* (NEPA).

4.1.1 List of Forest Service Preparers

The following Forest Service contributors provided resource analysis and documentation to prepare the Sugarloaf Hazardous Fuels Reduction EIS.

Agency Coordinator	Contribution and Qualifications
CAROL SPINOS, District Senior NEPA Planner, Feather River Ranger District, Plumas National Forest	Team Leader : IDT coordination, lead oversight of environmental analysis process and review coordination, EIS lead writer/editor chapters 1 and 2 and overall document compilation. University of Syracuse; Department of Forestry, Southern Oregon University with twenty-seven years experience in forestry and environmental planning.
DEIRDRE CHERRY, District Fire and Fuels Officer, Feather River Ranger District, Plumas National Forest	Fire and Fuels: Analysis and documentation of fuels management, treatment design, fire behavior consequences, field surveys. B.S. Athletic Training. Four years education, twenty-one years experience.
DANIEL ROSKOPF, District Silviculture, Feather River Ranger District, Plumas National Forest	Economics: B.S. Forest Resource Management, Minor Natural Resources, Humboldt State University. Silviculture Institute - Oregon State University and University of Washington. California Certified Pesticide Applicator. Twenty-seven years experience in Fire, Timber, and Silviculture.
KIP VAN DEWATER, Fire Ecologist, Feather River Ranger District, Plumas National Forest	Silviculture: Analysis and treatment design, coordination and compilation of field surveys, fire behavior analysis, environmental analysis and documentation. B.S. Forestry and Natural Resources, California Polytechnic State University, San Luis Obispo; M.S. Ecology, University of California, Davis. Nine years experience with the Forest Service.
OSWALDO ANGULO, District Hydrologist, Feather River Ranger District, Plumas National Forest	Hydrology and Soils. Analysis and documentation of soils and hydrology resources. B.S. geoscience, option in hydrology, 2007 California State University, Chico. GIS certificate 2006. Four years education, six years experience.
DANDING GAN, Hydrologist, Feather River Ranger District, Plumas National Forest	Hydrology: Analysis and documentation of watershed resources analysis and documentation, coordination and compilation of field surveys, research and non-federal land uses within the Planning Area, including preparation of the cumulative watershed effects analysis.

Agency Coordinator	Contribution and Qualifications
JOANNA ARROYO, District Assistant Wildlife Biologist, Feather River Ranger District, Plumas National Forest	Wildlife: Analysis and documentation, including ESA listed, FS Sensitive, MIS and other terrestrial species; compiled in the Biological Assessment and Biological Evaluation for Fish and Wildlife, New Mexico State University, Las Cruces. Six years education, ten years experience.
CINDY ROBERTS, District Wildlife Biologist, Feather River Ranger District, Plumas National Forest	Wildlife: Analysis and documentation review, analysis and documentation of MIS and migratory habitat and species, including editor of the Biological Assessment and Biological Evaluation for Fish and Wildlife. B.S. wildlife biology, M.S. wildlife management. Eight years education, twenty years experience.
MARIA CISNEROS, District Fisheries/Aquatics Biologist, Feather River Ranger District, Plumas National Forest	Fisheries and Aquatics: Analysis and documentation, including ESA listed, FS Sensitive, MIS and other fish/aquatic species; compiled in the Biological Assessment and Biological Evaluation for Fish and Wildlife, informal consultation. B.S. Wildlife Management and Conservation, Humboldt State University 2007. Four years education, 14 years experience as a field biologist.
TINA HOPKINS, Plumas NF Fisheries Biologist, Plumas National Forest	Fisheries and Aquatics: Oversight of fisheries and aquatics analysis and documentation, including ESA listed, FS Sensitive, MIS and other fish/aquatic species; compiled in the Biological Assessment and Biological Evaluation for Fish and Wildlife, informal consultation. Twenty-five years, BS Wildlife and Fisheries Biology, studying towards a Masters in Conservation Biology.
JAMIE MOORE, District Archaeologist, Feather River Ranger District, Plumas National Forest	Cultural Resources: Analysis and documentation of Heritage Resources. Coordination and compilation of heritage field surveys. M.A. anthropology, 2002 California State University, Sacramento. Eleven years education, seventeen years experience.
LAWRENCE JANEWAY, Assistant District Botanist, Feather River Ranger District, Plumas National Forest	Botany: Analysis and documentation, integrated pest management treatment design, including coordinating, conducting and compiling field surveys. B.S. biology, California State University, Chico, M.S., University of California, Davis. Eight years education, ten years experience, expertise in rare and invasive plants.
DEB SCHOENBERG, District Recreation/Lands/Visuals, Feather River Ranger District, Plumas National Forest	Recreation and Visuals: Consultation, analysis review and documentation of Recreation, Non-federal land uses, Scenic Quality and Public Health and Safety. B.S. landscape architecture. Twenty-five years experience, expertise in recreation scenery management.
DONNA DUNCAN, Plumas National Forest Minerals, Plumas National Forest	Minerals: Analysis and documentation.
CARVEL BASS, District Geographic Information Systems (GIS) Coordinator, Feather River Ranger District, Plumas National Forest	Geographic Information Systems (GIS): Analysis and production of GIS generated maps associated with displaying treatment locations and methods, and other natural resource information. B.A. geography. GIS certificate. Four years education, five years experience, expertise in GIS.

4.2 Distribution of the Final Environmental Impact Statement_____

4.2.1 Federal, State, and Local Agencies

This EIS is being distributed primarily online at the Plumas National Forest website on the internet: http://www.fs.fed.us/r5/plumas/projects_and_plans/sugarloaf_hazardous_fuels_reduction/

Letters announcing the web site posting are being sent to numerous individuals, Federal agencies, State and local governments, and organizations representing a wide range of views. Hard copies are being distributed to individuals who specifically requested a copy of the document. In addition, this EIS is being sent to:

- USDA National Agricultural Library, Acquisitions and Serials Branch
- US Environmental Protection Agency, Office of Federal Activities
- Environmental Protection Agency, Region 9
- US Department of Interior, Office of Environmental Policy and Compliance
- Office of United States Senator Feinstein
- Plumas County Fire Department, California Department of Forestry and Fire Protection (CDF/CAL FIRE)
- Quincy Library Group
- Sierra Forest Legacy
- Sierra Pacific Industries
- Homeowners Association
- American Forest Resource Council
- John Muir Project of Earth Island Institute and the Center for Biological Diversity.

4.2.2 Consultation with United States Fish and Wildlife Service

Wildlife. The Biological Assessment is prepared to determine the effects of proposed projects on species listed by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service as Endangered, Threatened or Proposed for listing (TES). It is prepared in accordance with legal requirements set forth under Section 7 of the *Endangered Species Act* (19 U.S.C. 1536 {c}), 50 CFR 402, and standards established in Forest Service Manual direction (FSM 2672.42).

The Biological Evaluation provides a process to review all Forest Service planned, funded, executed, or permitted programs and activities for possible effects on regionally listed Forest Service Sensitive species (FSM 2672.42). For the purpose of this FEIS, the supporting BA and BE for fish and wildlife (including invertebrates, amphibians, reptiles, birds, and mammals) are combined into one report.

A list of TES was provided by the “Federal Endangered and Threatened Species that may be affected by Projects on the Plumas National Forest,” updated September 18, 2011 report date April 1, 2011 accessed via USFWS county list web page (http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists_NF-action-page.cfm). Refer to Appendix A of the Sugarloaf Hazardous Fuels Reduction Project’s Biological Assessment and Biological Evaluation for Fish and Wildlife for the species list.

Botanical. Forest Service Manual 2672.42 specifies that a biological evaluation be prepared to determine if a project may affect any Forest Service Sensitive species or U.S. Fish and Wildlife Service (USFWS) TES. This FEIS, and associated reports, describes potential effects of the proposed project on all TES plants of record for the project area. The latest USFWS botanical species list for the Plumas National Forest was accessed from the USFWS website on April 29, 2013. This list fulfills the requirements to provide a current species list pursuant to Section 7(c) of the 1973 *Endangered Species Act*, as amended. The USFWS list of TES potentially occurring in the Plumas National Forest included the following species, *Orcuttia tenuis*, (slender Orcutt grass). *Orcuttia tenuis* is limited to relatively deep vernal pools or vernal pool type habitat with clay soil. No suitable habitat for this species occurs in the Project Area.

4.2.3 Consultation with California Department of Fish and Game

The department was contacted during treatment design and analysis for the Sugarloaf Project. The department manages wildlife populations for the state of California, with an emphasis typically on game species, such as the local deer herds and associated habitats.

4.2.4 Consultation with Tribes

- Maidu Tribe of Mooretown Rancheria
- Estom Yumeka Maidu Tribe of Enterprise Rancheria
- Mechoopda Indian Tribe of Chico Rancheria
- Tyme Maidu Tribe of Berry Creek Rancheria
- Greenville Indian Rancheria.

Glossary

“90th Percentile” Weather Conditions. High fire weather conditions of temperature, humidity, wind, and fuel moisture used for modeling expected fire behavior.

Basal Area. Cross-sectional area of all stems in a stand per unit of ground area (Helms 1998). Basal area is a measure of stand density and is often correlated with other stand characteristics, such as productivity or canopy fuel characteristics. The cross-sectional area of a stem is calculated at breast height, which is defined as 4.5 feet (1.37 m) above ground level.

Best Management Practices (BMPs). Mitigation measures applied to a project to help ensure that it is conducted in an environmentally responsible manner. BMPs protect people, wildlife, air quality and landscapes.

Biomass. Mass of organic matter per unit of ground area. Biomass includes both the mass of plants (phytomass) and the mass of animals (zoomass). In forestry and wildland fire applications, biomass refers specifically to phytomass. Individual components of biomass can be identified specifically; for example, total above-ground biomass is the mass of all parts of trees, shrubs, and grasses occurring above the ground surface, specifically excluding below-ground plant mass consisting of roots.

Butte Unit’s Community Wildfire Protection Plan (CWPP). Management plan using focused, pre-fire treatments at the landscape level to protect assets at risk, with the goal of mitigating future destruction and associated costs from severe wildfire.

California Wildlife Habitat Relationship (CWHR). Wildlife habitat classification and information system, and predictive model for California’s regularly-occurring birds, mammals, reptiles, and amphibians.

Canopy/Crown Base Height. Lowest height above the ground at which there is sufficient canopy fuel to propagate fire vertically (Scott and Reinhardt 2001). Canopy base height is a property of a plot, stand, or group of trees, not of an individual tree (see crown base height). For fire modeling, canopy base height is an effective value that incorporates ladder fuel, such as tall shrubs and small trees. No physical field measurement of canopy base height exists; therefore, different observers will estimate different values in the same stand.

Canopy Cover. Fraction of ground area covered by the vertical projection of tree crown perimeters. Canopy cover is commonly expressed as a percentage of total ground area; for example, at 50 percent canopy cover, half of the total ground area is covered by the vertical projection of tree crowns. Unless otherwise specified, canopy cover refers to non-overlapping canopy cover. Two overlapping crowns are not counted twice, so the theoretical maximum attainable canopy cover value is 100 percent. Values of overlapping canopy cover, used in ecological applications, can exceed 100 percent.

Crown Fuels. Foliage and fine branchwood of trees. It is generally assumed that all canopy fuel consumption takes place during the short duration of the flaming front of a crown fire. Only fine fuel particles are consumed in the flaming crown fire front -- the foliage plus some fraction of the live and

dead branchwood (Brown and Bradshaw 1994; Brown and Reinhardt 1991). Scott and Reinhardt (2005) estimated available canopy fuel as the foliage plus 0–3 mm live branchwood plus 0–6 mm dead branchwood. Brown, J.K. and L.S. Bradshaw, 1994.

Crown Fire. Wildland fire that burns forest canopy fuel (Scott and Reinhardt 2001). The term crown fire is used in reference to both true crown fires (referring to burning individual tree crowns, also called torching or passive crown fire) and canopy fires (referring to fires that burn the whole forest canopy as a single entity, which include active, continuous, and independent crown fires).

Active Crown Fire. Crown fire in which the entire fuel complex is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread (Scott and Reinhardt 2001). An active crown fire may also be also called a running crown fire or continuous crown fire. An active crown fire presents a solid wall of flame from the surface through the canopy fuel layers. Flames appear to emanate from the canopy as a whole rather than from individual trees within the canopy. Joe Scott, Research Forester Systems for Environmental Management. Active crown fire is one of several types of crown fire and is contrasted with passive crown fire and intermittent crown fire, both of which are less vigorous types of crown fire that do not emit continuous, solid flames from the canopy.

Defensible Fuel Profile Zone (DFPZ). Area where fuel has been treated to reduce surface fuel loads, increase the canopy base height, or decrease canopy bulk density. A Defensible Fuel Profile Zone (DFPZ) is another phrase for a fuelbreak but is applicable usually to forest fuelbreaks (as contrasted with fuelbreaks in shrublands). The term originates from the Quincy Library Group's proposal for fragmenting fuels on the Lassen and Plumas national forests and north portion of the Tahoe National Forest in California. In concept, a DFPZ is a shaded fuelbreak.

Desired Conditions. The goal outcome for a resource or ecosystem; desired conditions generally represent long-term goals, so are not immediately attainable in their nature. A lengthy period of time may be required to achieve them, and during that time they may be modified, if necessary, to respond to changing conditions and/or improved knowledge.

Diameter at Breast Height. Diameter of a tree stem at a height 4.5 feet above ground level. Diameter at breast height (dbh), unless otherwise noted, is measured outside the bark (DBHOB). On sloping terrain, dbh is measured 4.5 feet above the highest ground around the tree. Diameter at breast height can be measured by ocular estimate or using tools such as a Biltmore stick, calipers, or diameter tape (d-tape). Diameter at breast height of very large trees is estimated by dividing the circumference (outside bark) by pi (3.14159).

Fire Disturbance. In its natural role, fire should not be considered a disturbance that impacts ecosystems, but rather an incorporated ecological process that is as much a part of the environment as wind, flooding, soil development, erosion, predation, herbivory, carbon and nutrient cycling, and energy flow. Fire resets vegetation trajectories, sets up and maintains a dynamic mosaic of different vegetation structures and compositions, and reduces fuel accumulations. Humans have often disrupted these processes, and the result can be that fire behavior and fire effects are outside of their range of natural variation. At that point, fire is considered an exogenous disturbance factor (Sugihara and others 2006).

Fire hazard. A physical situation with potential for fire to cause harm or damage. There are three primary factors affecting fire hazard: fuel, weather, and topography. Note that the commonly used term “fuel hazard” is misleading because fuel is but one component of fire hazard. No standard quantitative measure of fire hazard exists; however, two characteristics are possible to estimate: annual burn probability and expected distribution of a fire behavior characteristic (for example, fireline intensity).

Fire Intensity. Amount of energy or heat release per unit time, which can encompass several specific types of fire intensity measures. Byram (1959) defined the term as “the rate of energy or heat release per unit time, per unit length of fire front, regardless of its depth.”

Fire Severity. Effect of a fire on ecosystem properties, usually defined by the degree of soil heating or mortality of vegetation. The severity of a fire depends on the fire intensity and the degree to which ecosystem properties are fire resistant. For example, a fire of exactly the same fireline intensity might kill thin-barked trees but have little effect on thick-barked trees. Therefore, fire severity is, in part, a function of the ecosystem being burned and is not simply indexed from fireline intensity. If a fire has a long residence time, fire severity will usually increase.

Flame Length. Flame length is measured to the leading edge so that the measurement follows the streamlines in the flame. It has been defined alternatively as the cord length from the tip of the flame to a point along the base of the flame midway between the leading and trailing edge. The former is the preferred definition. Anderson, W.; Pastor, E.; Butler, B.; Catchpole, E.; Dupuy, J.; Fernandes, P.; Guijarro, M.; Mendes-Lopes, J.; Ventura, J. 2006. Evaluating models to estimate flame characteristics for free-burning fires using laboratory and field data: Proceedings 5th Intl. Conf. on For. Fire Res., Viegas, D.X., ed. 2006 November 27–30; Figueira daFoz, Portugal, University of Coimbra. In: Elsevier, Forest Ecology and Management 234 Supplement 1 (2006).

Fuels. In wildland fire, fuel is all combustible plant-derived material including grass, litter, duff, down dead woody debris, exposed roots, plants, shrubs, and trees. This plant-derived material can be dead or alive. Plant parts that are not consumed, such as the trunks of live trees, are not considered fuel. van Wagtendonk, J.W. 2006. Fire is a physical process.

Fuel continuity. Fire’s ability to sustain combustion and spread and applies to both surface fuel and crown fuel.

Fuel load. Amount of fuel that is potentially available for combustion (van Wagtendonk 2006). Fuel load is usually quantified numerically as total mass per unit area. One of the more commonly used field methods for estimating fuel load in forest ecosystems was developed by Brown (1974). Brown, J.K. 1974. Handbook for inventorying downed woody material.

Habitat. Place or type of site in which an organism typically lives, grows and/or exists.

Home Range. Geographic area within which an animal restricts its activities.

Horizontal Fuels. Flammable material distributed in a plane approximately perpendicular to the vertical. The greater the spacing between plants, the greater the wind speed must be to spread a fire. The actual distance required between plants depends on the height of the plants and the slope of the land.

Implementation Plan, 10-Year Strategy (2002), superseded by revised version (2006).

Identifies 22 specific tasks requisite to achieving the four goals identified in the 10-Year Strategy, as well as and the performance measures that are interagency and interdepartmental in scope. The plan emphasizes a collaborative, community-based approach to addressing wildland fire related issues.

Ladder Fuels. Fuel that provides vertical continuity between surface fuel and canopy fuel strata, increasing the likelihood that fire will carry from surface fuel into the crowns of shrubs and trees (NWCG 2005). Ladder fuel typically consists of shrubs and small trees growing under the canopy fuel stratum. When the canopy is composed of pines, such ladder fuel may become draped with fallen needles, making it even more likely to transfer fire between strata. Ignition of ladder fuel can help initiate and sustain crown fire activity.

Landscape. Heterogeneous land area with interacting ecosystems that are repeated in similar form throughout.

Large woody debris (LWD). Materials including whole trees with a rootwad and limbs attached or portions of trees with or without rootwad or limbs. LWD is typically defined by biologists as logs with a minimum diameter of 4 inches and a minimum length of 6 feet that protrude or lay within a stream channel.

Management Indicator Species (MIS). Species selected because its welfare is presumed to be an indicator of the welfare of other species in the habitat. A species whose condition can be used to assess the impacts of management actions on a particular area. Managing for these species requires significant allocations of land or resources.

Mastication. Fuel modification technique involving the use of heavy machinery to shred standing live and dead shrubs and tree saplings into small chunks. Mastication is the shredding of standing trees and shrubs with a specially designed mastication head mounted on an excavator or on a bulldozer. The rapidly spinning mastication head breaks the standing live and dead material into smaller chunks and disperses it. Eric Knapp, Research Ecologist Pacific Southwest Research Station.

Measurement Indicators. Observable phenomena that consistently correlate strongly with the object or phenomenon being measured, and thus whose occurrence suggests the co-occurrence of that which is being measured.

Mitigation Measures. Modifications of actions with the goal(s) of: (1) avoiding impacts by not taking certain actions or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying impacts by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating impacts over time by preservation and maintenance operations during the life of the action, or; (5) compensating for impacts by replacing or providing substitute resources or environments.

National Forest Management Act (NFMA). Law passed in 1976 as an amendment to the *Forest and Rangeland Renewable Resources Planning Act*, requiring the preparation of Forest Plans and the preparation of regulations to guide that development.

Prescribed Fire. Conflagration started and maintained under controllable conditions, for the purpose of meeting management objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

Rate of spread. Linear rate of advance of a fire front in the direction perpendicular to the fire front. The above definition allows calculation of rate of spread or fireline intensity for any portion of the fire perimeter. When estimating rate of spread by observing the time interval between flaming front passage at two points, it is important that the two points be oriented perpendicular to the fire front. The term “forward rate of spread” is used in place of rate of spread by some authors to indicate rate of spread in the heading direction. In that case, the preferred phrase is “head fire rate of spread.” Some authors may also use forward rate of spread to distinguish from other measures of fire growth rate, such as rate of area increase.

Smoke. Mixture of particulates, gasses, and liquid droplets combined with air that is produced by the combustion of woody (or other carbon-based) fuel.

Snag. Any standing dead, partially dead, or defective (cull) tree. Smoke typically includes carbon particles, carbon dioxide, carbon monoxide, water vapor, water droplets, some more complex hydrocarbons, and other volatile gasses. The exact composition changes as the smoke ages and/or cools. Brian Potter, Research Meteorologist Pacific Northwest Research Station.

Spotting. Behavior of a fire that produces firebrands that are transported by ambient winds, fire whirls, and/or convection columns causing spot fires ahead of the main fire perimeter (Andrews 1996; NWCG 2005). Spotting can occur over distances ranging from a few meters to tens of kilometers ahead of the flaming front. Albini (1983) described short-range, intermediate-range, and long-range spotting. Short-range spotting can reach up to several tens of meters, intermediate-range spotting can reach up to several kilometers, and long-range spotting can reach distances of tens of kilometers ahead of the main fire.

Spot Fire. Fire ignited outside the perimeter of the main fire by a firebrand or any other piece of burning material (Andrews 1996; NWCG 2005). Fire growth by spot fires allow fires to cross barriers like rivers and highways.

Stand (of trees). Aggregation of trees occupying a specific area and sufficiently uniform in composition, age, arrangement, and condition so that it is distinguishable from the forest in adjoining areas.

Surface Fuels. Fuel lying on or near the surface of the ground consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and living plants of low stature (NWCG 2005). In natural ecosystems, fire generally is ignited in and carried by surface fuel.

Threatened and Endangered (TE) Species. Plant or animal species defined through the *Endangered Species Act* (ESA) as being in immediate danger of extinction, or likely to become in danger of extinction, throughout all or a significant portion of their ranges within the foreseeable future; a plant or animal identified and defined in accordance with the *Endangered Species Act* of 1973 (16 U.S.C. 1531 et seq.) and published in the *Federal Register*.

Threshold of Concern. Measure of potential cumulative effects to species and habitats; a level above which exposure will pose a significant risk. The threshold-of-concern technique is an interdisciplinary planning tool useful in evaluating impacts of proposed land-management practices. It is most helpful for dealing with impacts that are difficult to quantify in physical terms. For the purpose of this document, the aquatic analysis incorporates calculated “Equivalent Roaded Areas” (ERAs) evaluated in terms of a Threshold of Concern (TOC) at a Hydrologic Unit Code (HUC)-6 watershed (subwatershed) scale.

Torching. Phenomenon that occurs when a fire transitions from a surface fire into the crowns of individual trees or small groups of trees and burns briefly and vigorously but not necessarily from one crown to another (Albini 1983; Andrews 1996). Torching is also referred to as “passive crown fire.”

Underburn. Purposefully initiated fire in a forest stand of low to moderate fireline intensity that remains a surface fire. An underburn is defined as a fire that is constrained to surface fuel and therefore has a low to moderate fireline intensity (less than 300 kW/m). Underburns are commonly prescribed for dry forest types such as ponderosa pine or mixed conifer to reduce fuel but leave the overstory intact. Underburns are usually classified as low-severity fires.

Vertical Fuels. Fuels (vegetation) leading from the ground into the tops of the tallest trees (see ladder fuels).

Visual Quality Objective. Set of maximum allowable levels of future visual alteration of a characteristic landscape.

Watershed. Drainage basin contributing water, organic matter, dissolved nutrients and sediment to a stream or lake.

Wildfire. Unplanned, wildland fire burning in vegetative fuel. Wildfires include any wildland fire for which the objective is to contain and control the fire, including unauthorized human-caused fires.

Wildland Urban Interface (WUI). Area, or zone, where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. It generally extends 1.5 miles from the edge of developed private land into the wildland.

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WORD INDEX

2003 Healthy Forest Restoration Act, 3-3

90th percentile weather conditions, 2-32, 2-34, 2-36, 3-4, 3-5, 3-10, 3-34

age class, 3-4, 3-45, 3-47

Air Quality, 1-11, 2-17, 2-46, 3-197, 3-198, 3-203, 3-206, 3-208, 3-209, 3-215

Alternative A, iii, ix, xi, xv, 2-1, 2-17, 2-40, 2-41, 2-43–2-46, 2-48, 3-13, 3-14, 3-22, 3-29, 3-34, 3-37, 3-40, 3-41, 3-42, 3-45, 3-47, 3-62, 3-87, 3-99, 3-103, 3-107, 3-119, 3-120, 3-135, 3-136, 3-153, 3-157, 3-158, 3-160, 3-164, 3-175, 3-183, 3-184, 3-186, 3-193, 3-196, 3-204, 3-210

Alternative B, iv, viii, ix, xii–xvii, 1-7, 1-9, 2-1, 2-12, 2-14, 2-17, 2-23–2-26, 2-33, 2-35, 2-39–2-41, 2-43–2-46, 2-48, 3-16, 3-18, 3-19, 3-20, 3-22, 3-41, 3-42, 3-44, 3-45, 3-47, 3-48, 3-49, 3-52, 3-63, 3-65, 3-66, 3-67, 3-68, 3-69, 3-70, 3-71, 3-72, 3-76, 3-77, 3-79, 3-80, 3-81, 3-83, 3-93, 3-98, 3-99, 3-100, 3-101, 3-102, 3-103, 3-105, 3-106, 3-107, 3-123, 3-125, 3-127, 3-128, 3-129, 3-130, 3-132, 3-133, 3-135, 3-136, 3-137, 3-153, 3-155, 3-156, 3-157, 3-158, 3-159, 3-160, 3-162, 3-163, 3-164, 3-165, 3-184, 3-185, 3-186, 3-187, 3-193, 3-194, 3-205, 3-206, 3-210, 3-211

Alternative C, iv, x, xiii, xv–xvii, 2-18, 2-27–2-30, 2-40, 2-41, 2-43, 2-45, 2-46, 2-48, 3-15, 3-20, 3-42, 3-49, 3-64, 3-69, 3-70, 3-71, 3-76, 3-77, 3-80, 3-81, 3-99, 3-100, 3-102, 3-103, 3-105, 3-106, 3-107, 3-129, 3-130, 3-131, 3-136, 3-156, 3-159, 3-163, 3-184, 3-186, 3-187, 3-205, 3-207, 3-208, 3-209, 3-210

alternative D, iii, viii–x, xiv–xvii, 1-6, 1-9, 2-1, 2-2, 2-17–2-23, 2-27, 2-28, 2-40, 2-41–2-46, 2-48, 3-15, 3-20, 3-42, 3-44, 3-47, 3-49, 3-62, 3-65, 3-66, 3-69, 3-70, 3-71, 3-72, 3-76, 3-77, 3-80, 3-81, 3-86, 3-98, 3-99, 3-100, 3-102, 3-103, 3-105, 3-106, 3-107, 3-110, 3-111, 3-132, 3-133, 3-134, 3-135, 3-137, 3-138, 3-139, 3-156, 3-157, 3-160, 3-163, 3-165,

3-181, 3-184, 3-185, 3-186, 3-187, 3-194, 3-205, 3-208, 3-209, 3-210, 4-11

area thinning, iii, vii, xvii, 1-6, 2-7–2-9, 2-11, 2-12, 2-17, 2-19, 2-20, 2-25–2-29, 2-31, 2-35, 2-40

basal area, xvi, 1-4, 2-7, 2-16, 2-24, 2-41, 3-18, 3-25, 3-26, 3-27, 3-30, 3-34, 3-35, 3-37, 3-41, 3-42, 3-44, 3-46, 3-55, 3-57, 3-170, 4-5

best management practices, 2-2, 2-44, 3-85, 3-107, 3-108, 3-109, 3-115, 3-117, 3-120, 3-125, 3-129, 3-133, 3-137, 3-155, 3-162, 3-213, 3-214, 3-215, 3-216, 3-217, 4-5, 4-24, 4-25, 4-33

biomass, viii, xii, 1-5, 1-6, 1-9, 2-13, 2-31, 2-33, 2-37, 2-42, 3-25, 3-26, 3-71, 3-158, 3-159, 3-160, 3-162, 3-164, 3-165, 3-182, 3-183, 3-185, 3-186, 3-204, 3-207, 3-208, 3-209, 3-211, 4-5, 4-10, 4-19, 4-31

BMP, 2-44, 3-106, 3-117, 3-125, 3-126, 3-154, 3-214

board feet, iii, ix, x, 1-6, 2-13, 2-17, 2-23, 2-40, 3-181, 3-182, 3-185, 3-186, 3-187

Canopy Base Height, 1-2, 2-10–2-12, 2-41, 3-7, 3-8, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, 3-21, 3-22, 4-5, 4-6

canopy cover, viii, xi–xiv, 1-3, 1-8, 2-6–2-10, 2-19–2-21, 2-24–2-26, 2-28, 2-29, 2-35, 2-41, 2-45, 3-14, 3-16, 3-18, 3-25, 3-28, 3-29, 3-31, 3-34, 3-35, 3-38, 3-42, 3-46, 3-47, 3-49, 3-54, 3-58, 3-59, 3-60, 3-62, 3-68, 3-69, 3-70, 3-71, 3-75, 3-76, 3-79, 3-80, 3-81, 3-84, 3-102, 3-123, 3-210, 4-5, 4-11

catastrophic, vii, 3-99, 3-100, 3-106, 3-176, 3-192, 3-204, 3-211

Community Wildfire Protection Plan (CWPP), 1-2, —4-5

consultation and coordination, 1-1

crown closure, 2-7, 3-27

crown fire, viii, 1-3, 2-4, 2-6, 3-7, 3-9, 3-11,
3-12, 3-13, 3-14, 3-16, 3-17, 3-22, 3-71, 3-83,
4-5, 4-6, 4-8, 4-10

Cumulative Effects, ix, 2-43, 3-1, 3-2, 3-4, 3-5,
3-7, 3-9, 3-14, 3-19, 3-20, 3-24, 3-28, 3-29,
3-38, 3-40, 3-47, 3-52, 3-53, 3-54, 3-72, 3-78,
3-82, 3-86, 3-91, 3-93, 3-94, 3-95, 3-99, 3-103,
3-104, 3-106, 3-107, 3-108, 3-112, 3-116,
3-117, 3-120, 3-127, 3-130, 3-133, 3-135,
3-138, 3-164, 3-175, 3-183, 3-186, 3-190,
3-191, 3-193, 3-194, 3-196, 3-204, 3-206, 4-10,
4-31

Cumulative Watershed Effects, 1-10, 3-54,
3-112, 3-114, 3-115, 3-116, 4-33

CWHR (California Wildlife Habitat
Relationship), xvi, 1-3, 1-4, 2-6–2-12, 2-16,
2-17, 2-19, 2-24, 2-33, 2-41, 2-45, 3-25, 3-26,
3-28, 3-29, 3-31, 3-32, 3-33, 3-34, 3-38, 3-40,
3-45, 3-47, 3-48, 3-49, 3-55, 3-56, 3-58, 3-59,
3-60, 3-63, 3-64, 3-65, 3-71, 3-72, 3-74, 3-78,
3-81, 4-5, 4-11

dbh, xi, xii, xiii, xiv, 1-8, 2-6, 2-11–2-13, 2-16,
2-20, 2-25, 2-26, 2-28, 2-29, 2-31–2-35, 2-41,
3-22, 3-25, 3-29, 3-31, 3-34, 3-35, 3-37, 3-46,
3-53, 3-55, 3-57, 3-58, 3-59, 3-60, 3-61, 3-65,
3-66, 3-68, 3-70, 3-71, 3-76, 3-79, 3-81, 3-85,
3-88, 4-6

decommission, vii, 3-101

Deer, 4-4, 4-29

Defensible Fuel Profile Zone (DFPZ), iv, ix, xii,
1-9, 2-23, 2-26, 2-40, 3-3, 3-5, 3-18, 3-20,
3-22, 3-39, 3-68, 3-70, 3-71, 3-81, 3-84,
3-154, 3-158, 3-170, 3-187, 4-6, 4-30, 4-32,
4-33

desired condition, viii, 1-2–1-5, 2-1, 2-7–2-11,
2-14, 2-32, 2-34, 2-36, 2-46, 3-5, 3-6, 3-7, 3-10,
3-12, 3-14, 3-15, 3-17, 3-20, 3-22, 3-26, 3-32,
3-34, 3-39, 3-40, 3-42, 3-47, 3-49, 3-92, 3-101,
3-104, 3-119, 3-136, 3-141, 3-146, 3-157,
3-158, 3-159, 3-160, 3-162, 3-165, 3-177,
3-207, 3-209, 3-211, 4-6

diameter at breast height, xi–xiv, 1-8, 2-6, 2-11–
2-13, 2-16, 2-20, 2-25, 2-26, 2-28, 2-29, 2-31–
2-35, 2-41, 3-22, 3-25, 3-29, 3-31, 3-34, 3-35,
3-37, 3-46, 3-53, 3-55, 3-57, 3-58, 3-59, 3-60,
3-61, 3-65, 3-66, 3-68, 3-70, 3-71, 3-76, 3-79,
3-81, 3-85, 3-88, 4-6

disturbance, 1-3, 1-10, 2-2, 2-16, 2-31, 2-33,
2-37, 2-41, 3-7, 3-10, 3-12, 3-13, 3-32, 3-38,
3-40, 3-47, 3-54, 3-62, 3-67, 3-68, 3-70, 3-71,
3-72, 3-79, 3-81, 3-85, 3-86, 3-94, 3-96, 3-97,
3-99, 3-104, 3-108, 3-111, 3-116, 3-117, 3-121,
3-122, 3-128, 3-129, 3-131, 3-132, 3-134,
3-135, 3-138, 3-141, 3-153, 3-157, 3-160,
3-169, 3-173, 3-174, 3-189, 3-212, 4-6

duff, viii, 1-3, 2-7, 2-32, 2-34, 2-36, 3-140,
3-141, 3-142, 3-153, 3-154, 3-158, 4-7

economic, iii, vii, xv, 1-5, 1-6, 1-9, 1-10, 2-6,
2-13, 2-17, 2-23, 2-27, 2-42, 3-177, 3-178,
3-181, 3-182, 3-183, 3-184, 3-185, 3-186,
3-187, 3-211, 3-216, 4-1, 4-11, 4-16, 4-30

Employment, viii, 1-5, 1-6, 2-42, 3-178, 3-181,
3-182, 3-183, 3-184, 3-185, 3-186, 3-187

endemic, 3-32, 3-33, 3-40, 3-52, 3-91, 4-9, 4-34

ephemeral, 2-18, 2-19, 2-23, 2-24, 2-27, 2-28,
2-35, 3-93, 3-100, 3-110, 3-111, 3-123, 3-133,
4-15

ERA, 2-43, 3-106, 3-108, 3-116, 3-117, 3-120,
3-122, 3-127, 3-129, 3-130, 3-132, 3-133,
3-135, 3-136, 3-137

erosion, xii, xiv, 1-4, 1-8, 2-2, 2-21, 2-27, 2-31–
2-34, 2-36, 3-71, 3-95, 3-111, 3-117, 3-126,
3-136, 3-137, 3-138, 3-141, 3-145, 3-148,
3-153, 3-154, 3-155, 3-158, 3-160, 3-162,
3-164, 3-190, 3-193, 4-6, 4-22, 4-29, 4-33

Fire, iii, vii, viii, ix, xi, xii, xiii, xiv, 1-2, 1-3,
1-4, 1-6–1-8, 2-2, 2-4, 2-6, 2-8, 2-12, 2-13,
2-16, 2-19, 2-24, 2-27, 2-28, 2-31, 2-35, 2-41,
3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11,
3-12, 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, 3-19,
3-20, 3-21, 3-22, 3-23, 3-26, 3-27, 3-29, 3-31,
3-32, 3-34, 3-37, 3-38, 3-39, 3-40, 3-41, 3-42,
3-44, 3-45, 3-47, 3-54, 3-57, 3-62, 3-67, 3-69,

3-71, 3-72, 3-73, 3-76, 3-82, 3-83, 3-84, 3-98, 3-99, 3-100, 3-111, 3-119, 3-123, 3-126, 3-136, 3-137, 3-153, 3-154, 3-158, 3-164, 3-177, 3-180, 3-182, 3-183, 3-185, 3-186, 3-189, 3-190, 3-193, 3-194, 3-196, 3-197, 3-203, 3-204, 3-207, 3-208, 3-211, 3-212, 3-214, 4-1, 4-3, 4-5–4-11, 4-14–4-22, 4-24, 4-26, 4-29–4-32

fire behavior, vii, xii, 1-2–1-4, 2-4, 2-6, 2-12, 2-13, 2-27, 2-41, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-9, 3-10, 3-13, 3-14, 3-16, 3-17, 3-18, 3-19, 3-20, 3-21, 3-26, 3-37, 3-38, 3-39, 3-40, 3-47, 3-185, 4-1, 4-6, 4-7, 4-10, 4-29

fire type, xi, xiii, xiv, 2-41, 3-7, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-20, 3-21

Fish, xvi, 1-4, 2-19, 2-23, 2-24, 2-28, 2-35, 3-24, 3-50, 3-52, 3-57, 3-59, 3-60, 3-61, 3-73, 3-83, 3-89, 3-90, 3-92, 3-93, 3-94, 3-95, 3-110, 3-123, 3-138, 3-166, 3-170, 3-212, 3-214, 3-2161, 4-2, 4-3, 4-4, 4-13, 4-15, 4-16, 4-18–4-20, 4-24–4-27, 4-29, 4-31, 4-34, 4-35

fisher, xi, xii, 2-44, 3-50, 3-51, 3-53, 3-55, 3-56, 3-59, 3-60, 3-62, 3-78, 3-81, 3-82, 3-83, 3-84, 3-86, 3-87, 3-88, 4-16, 4-19, 4-20, 4-23, 4-26, 4-30

flame length, xi, xii, xiii, xiv, 1-2, 1-3, 2-4, 2-8, 2-10, 2-32, 2-34, 2-36, 2-41, 3-6, 3-7, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, 3-20, 3-21, 3-22, 3-34, 4-7

Foothill yellow legged frog, 3-97

Forest Survey Site Class, 3-23

fragmentation, 1-9, 4-19, 3-56, 3-71, 3-72, 3-81, 3-82, 3-83, 3-84, 3-88, 4-31

FSSC, 3-23

fuel loading, vii, 1-2, 3-4, 3-5, 3-6, 3-11, 3-13, 3-14, 3-17, 3-18, 3-21, 3-22, 3-40, 3-62, 3-183, 3-194, 3-197, 3-200, 3-205, 3-207, 3-209, 3-211

fuel, iii, vii–x, xii, xiii, xiv, xvii, 1-2, 1-6–1-8, 2-4, 2-6, 2-8, 2-9, 2-13, 2-16, 2-23, 2-24, 2-27–2-29, 2-32, 2-34, 2-36, 2-40, 2-41, 3-2, 3-3, 3-4,

3-5, 3-6, 3-7, 3-8, 3-10, 3-11, 3-12, 3-13, 3-14, 3-16, 3-17, 3-18, 3-19, 3-20, 3-21, 3-22, 3-23, 3-24, 3-31, 3-34, 3-38, 3-39, 3-40, 3-44, 3-49, 3-53, 3-62, 3-67, 3-72, 3-74, 3-87, 3-98, 3-99, 3-100, 3-111, 3-154, 3-177, 3-181, 3-182, 3-183, 3-184, 3-185, 3-186, 3-190, 3-193, 3-194, 3-196, 3-197, 3-200, 3-204, 3-205, 3-206, 3-207, 3-209, 3-210, 3-211, 3-213, 4-5–4-10, 4-29, 4-30, 4-31, 4-32

Fuels, iii, iv, vii, ix, xi, xv, xvi, 1-2, 1-7, 1-9, 2-1, 2-4, 2-41–2-43, 3-1, 3-2, 3-5, 3-6, 3-7, 3-20, 3-23, 3-39, 3-44, 3-54, 3-62, 3-69, 3-76, 3-89, 3-90, 3-91, 3-98, 3-99, 3-102, 3-104, 3-106, 3-107, 3-108, 3-109, 3-110, 3-112, 3-116, 3-123, 3-133, 3-138, 3-140, 3-155, 3-167, 3-169, 3-176, 3-177, 3-181, 3-185, 3-194, 3-196, 4-1, 4-4, 4-5, 4-7–4-10, 4-17, 4-24, 4-25

Goshawk Group Selection (GS), iv, ix, 2-9, 2-12, 2-17, 2-23, 2-24, 2-26, 2-40, 3-18, 3-35, 3-63, 3-67, 3-68, 3-70, 3-71, 3-72, 3-75, 3-76, 3-78, 3-79, 3-83, 3-105, 3-156, 3-163

grubbing, 2-12, 2-34

Habitat Types, 3-98

hand piling, 2-12, 3-17, 3-178, 3-205, 3-207, 3-209

Heterobasidion, 2-32, 2-34, 3-33, 3-45, 4-13

Home Range Core Area, 1-3, 3-58, 3-62, 3-67

Hydrology, 3-4, 3-83, 3-85, 3-94, 3-95, 3-96, 3-98, 3-108, 3-110, 3-115, 3-116, 3-123, 3-139, 3-211, 3-213, 3-215, 3-217, 4-1, 4-25

Intensity, vii, 1-3, 1-4, 1-7–1-10, 2-6, 2-12, 2-13, 2-20, 2-29, 3-3, 3-7, 3-8, 3-9, 3-11, 3-13, 3-14, 3-16, 3-17, 3-18, 3-21, 3-23, 3-30, 3-39, 3-41, 3-42, 3-44, 3-45, 3-47, 3-53, 3-62, 3-65, 3-69, 3-70, 3-71, 3-78, 3-80, 3-82, 3-86, 3-89, 3-100, 3-101, 3-117, 3-119, 3-136, 3-137, 3-153, 3-154, 3-157, 3-160, 3-164, 3-190, 3-194, 3-210, 4-7, 4-9, 4-10

intermittent, 2-7, 2-18, 2-19, 2-23, 2-27, 2-28, 2-31, 2-33, 2-35, 3-93, 3-96, 3-98, 3-100, 3-110, 3-133, 4-6

jackpot burn, 2-32, 2-33

ladder, 1-2, 2-4, 2-6, 2-10–2-12, 3-2, 3-12, 3-13, 3-16, 3-17, 3-18, 3-21, 3-22, 3-31, 3-34, 3-40, 3-47, 3-71, 3-76, 3-81, 4-5, 4-8, 4-10, 4-11

Ladder Fuel, 1-2, 2-4, 2-6, 2-10–2-12, 3-12, 3-13, 3-16, 3-17, 3-18, 3-21, 3-22, 3-31, 3-34, 3-40, 3-71, 4-5, 4-8, 4-10, 4-11

landing, iii, ix, x, 1-6, 1-10, 2-31, 2-33, 2-37, 2-40, 3-79, 3-82, 3-126, 3-155, 3-162, 3-191, 3-203

logging, vii, 1-10, 2-13, 2-17, 2-20, 2-26, 2-28, 2-40, 2-43, 2-46, 3-33, 3-41, 3-54, 3-60, 3-122, 3-154, 3-161, 3-182, 3-184, 3-185, 3-189, 3-191, 3-192, 3-203, 4-13, 4-15, 4-16, 4-26, 4-29

mainline, 2-31, 2-33

Management Indicator Species (MIS), 2-14, 3-50, 3-51, 4-2, 4-8

Maps, 3-53, 3-59, 3-83, 3-170, 3-175, 3-191, 4-2

marten, xi, xii, 2-44, 3-50, 3-51, 3-53, 3-56, 3-59, 3-60, 3-62, 3-78, 3-79, 3-81, 3-82, 3-83, 3-84, 3-86, 3-87, 3-88, 4-16, 4-18–4-20, 4-23, 4-30

mastication, iii, ix–xi, 1-6, 2-6, 2-10, 2-12, 2-13, 2-17, 2-19, 2-24, 2-26, 2-28, 2-34, 2-35, 2-40, 2-45, 2-48, 3-7, 3-18, 3-42, 3-44, 3-56, 3-63, 3-64, 3-65, 3-70, 3-77, 3-80, 3-81, 3-87, 3-99, 3-100, 3-101, 3-102, 3-123, 3-153, 3-154, 3-156, 3-157, 3-158, 3-159, 3-160, 3-163, 3-185, 3-189, 3-190, 3-193, 3-211, 3-212, 3-213, 4-8

mechanical thinning, xiii, 1-9, 2-19, 2-24, 2-28, 2-35, 2-45, 2-46, 2-48, 3-16, 3-17, 3-21, 3-40, 3-41, 3-42, 3-43, 3-44, 3-56, 3-62, 3-69, 3-79, 3-82, 3-86, 3-99, 3-123, 3-153, 3-157, 3-189, 3-193, 3-210, 3-211, 3-213

migratory birds, 3-1, 3-51, 3-212, 3-216, 4-25

Monitoring, xi, 2-1, 2-2, 2-14, 3-68, 3-74, 3-75, 3-84, 3-97, 3-109, 3-111, 3-117, 3-137, 3-139, 3-140, 3-141, 3-142, 3-153, 3-154, 3-161, 3-165, 3-199, 3-215, 3-217, 4-15, 4-25, 4-33, 4-34

Mountain Yellow-legged, 3-106

natural fire regime, xi, 1-2, 1-4, 3-9, 3-10, 3-56, 3-119, 3-136

no action, iii, xv, 1-7, 2-1, 2-17, 2-44, 3-13, 3-16, 3-26, 3-29, 3-34, 3-35, 3-40, 3-44, 3-45, 3-47, 3-62, 3-63, 3-87, 3-99, 3-107, 3-175, 3-194, 3-196, 3-204

noxious weeds, 2-47, 3-39, 3-166, 3-168, 3-169, 3-170, 3-172, 3-174, 3-176

oaks, 2-8, 2-11, 2-34, 3-55, 3-57, 3-66, 3-83, 3-85, 3-88, 4-20, 4-32

operability, 2-29, 2-32–2-36, 3-57, 3-65, 3-66

Organic Matter, 2-46, , 3-138, 3-141, 3-142, 3-146, 3-148, 3-154, 3-157, 3-158, 3-159, 3-160, 3-162, 3-164, 3-165, 3-169, 3-211, 3-213, 4-5, 4-10

passive crown fire, 3-7, 3-11, 3-14, 3-15, 3-16, 3-18, 3-34, 4-6, 4-10

perennial stream, 2-8, 2-18, 2-19, 2-27, 2-28, 2-31, 2-33, 3-90, 3-93, 3-96, 3-100, 3-133

prescribed burning, xi, xii, 1-6, 1-10, 1-11, 2-16, 2-43, 3-17, 3-18, 3-81, 3-85, 3-101, 3-126, 3-190, 3-197, 3-199, 3-203, 3-204, 3-205, 3-206, 3-207, 3-208, 3-209, 3-210, 3-211, 3-212, 3-213, 4-22

prescribed fire, iv, vii, ix, x, 1-3, 1-6, 1-8, 1-9, 2-2, 2-4, 2-6, 2-11–2-13, 2-16, 2-26, 2-35, 2-40, 3-16, 3-39, 3-42, 3-45, 3-57, 3-67, 3-70, 3-71, 3-126, 3-154, 3-178, 3-197, 3-198, 3-200, 3-203, 3-205, 3-206, 3-208, 3-209, 3-212, 3-213, 4-9, 4-21

- Proposed Action, iii, iv, vii–xi, xv, 1-1, 1-2, 1-6, 1-9–1-11, 2-1, 2-2, 2-17, 2-27, 2-38, 2-40, 2-41, 3-1, 3-2, 3-29, 3-51, 3-53, 3-74, 3-76, 3-86, 3-99, 3-100, 3-107, 3-117, 3-123, 3-125, 3-127, 3-136, 3-155, 3-168, 3-187, 3-190, 3-205, 3-210, 3-214, 3-215, 3-216
- Protected Activity Center (PAC), 1-3, 1-8, 2-16, 3-55, 3-58, 3-66, 3-67, 3-70, 3-71, 3-75, 3-82, 3-88
- quadratic mean diameter, 3-25, 3-28, 3-34, 3-35, 3-46
- rate of spread, 3-3, 3-13, 3-18, 3-23, 4-9
- Recreation, vii, ix, 1-5, 1-8, 2-48, 3-21, 3-39, 3-110, 3-116, 3-118, 3-138, 3-177, 3-179, 3-187, 3-199, 4-2
- Reforestation, ix,
- regeneration, 1-3, 2-7, 2-9, 2-10, 2-12, 2-34, 3-18, 3-25, 3-37, 3-38, 3-39, 3-45, 3-62, 3-144, 3-213, 4-32
- release, 2-4, 3-57, 3-83, 3-104, 3-205, 3-208, 3-209, 4-7
- residual trees, 2-9, 2-12, 3-18, 3-41, 3-42
- Riparian Habitat Conservation Areas, 2-12, 2-23, 2-24, 2-29, 2-33, 2-35, 3-63, 3-64, 3-70, 3-81, 3-86, 3-95, 3-97, 3-98, 3-99, 3-103, 3-105, 3-107, 3-110, 3-111, 3-123, 3-133, 3-154, 4-11
- riparian, iv, xvi, 1-4, 1-10, 2-1, 2-2, 2-7, 2-12, 2-14, 2-18–2-20, 2-23, 2-24, 2-26–2-28, 2-33, 2-35, 3-17, 3-18, 3-39, 3-40, 3-51, 3-52, 3-53, 3-55, 3-61, 3-62, 3-63, 3-64, 3-70, 3-79, 3-83, 3-84, 3-87, 3-88, 3-89, 3-92, 3-93, 3-94, 3-95, 3-97, 3-98, 3-99, 3-100, 3-101, 3-102, 3-105, 3-106, 3-107, 3-110, 3-111, 3-116, 3-118, 3-123, 3-132, 3-133, 3-137, 3-172, 3-212, 3-214, 3-216, 3-217, 4-11, 4-21
- road, iii, vii, ix, x, xii–xiv, 1-3–1-6, 1-9–1-11, 2-2, 2-4, 2-11, 2-13, 2-17, 2-18, 2-20, 2-21, 2-23, 2-26, 2-29, 2-31, 2-33, 2-37, 2-40, 2-42, 2-44, 3-4, 3-17, 3-39, 3-54, 3-65, 3-66, 3-71, 3-72, 3-75, 3-76, 3-77, 3-78, 3-79, 3-81, 3-82, 3-83, 3-94, 3-96, 3-99, 3-102, 3-104, 3-105, 3-106, 3-108, 3-115, 3-116, 3-118, 3-119, 3-120, 3-122, 3-123, 3-124, 3-126, 3-127, 3-129, 3-130, 3-133, 3-135, 3-136, 3-137, 3-144, 3-145, 3-169, 3-173, 3-175, 3-178, 3-182, 3-185, 3-193, 3-200, 3-203, 3-204, 3-212, 3-213, 3-216, 4-13, 4-15, 4-17–4-19, 4-21, 4-22
- sanitation, 3-24, 3-29, 3-38, 3-39
- sediment, vii, viii, 1-4, 1-6, 1-10, 2-2, 2-18, 2-44, 3-24, 3-89, 3-94, 3-99, 3-102, 3-103, 3-104, 3-107, 3-112, 3-117, 3-118, 3-119, 3-122, 3-124, 3-125, 3-127, 3-129, 3-130, 3-133, 3-135, 3-136, 3-137, 4-10, 4-13, 4-15, 4-17, 4-19, 4-21
- sensitive, xi, xii, xiii, xiv, 1-4, 2-6, 2-14, 2-16, 2-33, 2-45, 2-47, 3-1, 3-15, 3-18, 3-50, 3-52, 3-53, 3-55, 3-56, 3-57, 3-58, 3-59, 3-60, 3-61, 3-84, 3-85, 3-87, 3-89, 3-90, 3-91, 3-92, 3-94, 3-97, 3-116, 3-117, 3-126, 3-166, 3-167, 3-170, 3-171, 3-173, 3-174, 3-175, 3-176, 3-190, 3-198, 3-199, 3-204, 3-205, 3-211, 3-212, 4-2–4-4, 4-17, 4-25, 4-31, 4-33
- seral, 1-3, 2-11, 2-41, 2-45, 3-18, 3-28, 3-29, 3-31, 3-32, 3-38, 3-40, 3-42, 3-45, 3-47, 3-49, 3-68
- shade intolerant, 3-46, 3-57
- size class, 1-3, 2-7–2-10, 2-12, 2-17, 2-19, 2-24, 2-33, 2-41, 2-45, 3-25, 3-26, 3-28, 3-29, 3-31, 3-33, 3-38, 3-40, 3-47, 3-49, 3-56, 3-58, 3-59, 3-60, 3-63, 3-64, 3-65, 3-69, 3-70, 3-71, 3-74, 3-76, 3-79, 4-11
- skidding, 3-126, 3-203
- skyline, 2-13, 2-17, 2-26, 2-28, 2-31, 2-33, 2-37, 2-40, 3-185, 3-211
- slash, 2-12, 2-17, 2-31, 2-33, 3-5, 3-6, 3-14, 3-20, 3-33, 3-41, 3-126, 3-154, 3-203, 4-31
- snags, 1-3, 1-8, 2-8, 2-9, 2-12, 2-16, 2-32, 2-34, 2-35, 3-14, 3-22, 3-34, 3-39, 3-41, 3-51, 3-53, 3-54, 3-55, 3-56, 3-57, 3-61, 3-66, 3-71, 3-79,

3-81, 3-82, 3-83, 3-85, 3-86, 3-88, 3-213, 4-11, 4-20

spotted owl,

spotted owl, viii, xi, xii, 1-3, 1-7, 1-8, 2-12, 2-14, 2-41, 2-44, 3-50, 3-51, 3-52, 3-53, 3-55, 3-56, 3-57, 3-58, 3-62, 3-66, 3-67, 3-68, 3-69, 3-70, 3-71, 3-72, 3-73, 3-74, 3-75, 3-76, 3-79, 3-82, 3-83, 3-84, 3-86, 3-87, 3-88, 4-11, 4-13, 4-14, 4-16–4-23, 4-25–4-27, 4-29–4-34

stocking level, 2-34, 3-32, 3-53, 3-93, 3-211

subsoiling, 3-153, 3-161, 3-165

surface fire, xii–xiv, 2-4, 2-6, 3-7, 3-11, 3-12, 3-13, 3-15, 3-16, 3-22, 3-30, 4-10

Thinning, xvii, 2-11, 2-12, 2-19, 2-21, 2-24, 2-35, 3-16, 3-39, 3-99, 3-123

Thinning from below, iv, ix, x, 3-35, 3-39, 3-49

Threshold of Concern (TOC), xi–xiv, 2-43, 3-94, 3-95, 3-96, 3-103, 3-104, 3-106, 3-108, 3-116, 3-117, 3-120, 3-121, 3-122, 3-127, 3-128, 3-129, 3-130, 3-131, 3-132, 3-133, 3-134, 3-135, 3-136, 3-137, 4-10

Topography, 1-7, 2-6, 2-7, 2-20, 3-11, 3-53, 3-204, 4-6

torching, 1-3, 3-7, 3-11, 3-14, 3-16, 3-18, 3-20, 3-34, 4-6, 4-10

underburning, iv, vii, 1-6, 2-12, 2-13, 2-19, 2-20, 2-26, 2-28, 2-29, 2-35, 3-17, 3-18, 3-21, 3-40, 3-70, 3-108, 3-153, 3-154, 3-157, 3-173, 3-174, 3-178, 3-189, 3-190, 3-193, 3-213

uneven-aged, viii, 1-3, 3-27

Vegetation, 3-1, 3-4, 3-10, 3-23, 3-25, 3-26, 3-27, 3-28, 3-34, 3-40, 3-45, 3-56, 3-61, 3-62, 3-69, 3-76, 3-170, 3-200, 4-25, 4-34

visual quality objective, 1-8, —4-10, 4-11

Water Quality, iii, vii, 1-4, 1-6, 1-9, 1-10, 2-2, 2-17, 2-37, 2-43, 2-44, 3-89, 3-94, 3-95, 3-96, 3-104, 3-106, 3-108, 3-109, 3-110, 3-111, 3-115, 3-116, 3-117, 3-118, 3-119, 3-123, 3-124, 3-125, 3-126, 3-127, 3-129, 3-130, 3-133, 3-135, 3-136, 3-137, 3-185, 3-214, 3-217, 4-22, 4-24, 4-29, 4-32, 4-33

white pine blister rust, 2-34, 3-32

Wildfire, vii, ix, 1-2–1-4, 1-7, 1-8, 2-4, 2-6, 2-13, 2-16, 2-17, 2-23, 2-24, 2-41, 2-45, 2-46, 2-48, 3-2, 3-3, 3-11, 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, 3-21, 3-22, 3-23, 3-26, 3-34, 3-38, 3-40, 3-44, 3-62, 3-70, 3-71, 3-72, 3-73, 3-75, 3-83, 3-87, 3-119, 3-136, 3-137, 3-153, 3-157, 3-158, 3-160, 3-164, 3-175, 3-176, 3-182, 3-183, 3-185, 3-186, 3-190, 3-193, 3-194, 3-196, 3-200, 3-203, 3-204, 3-205, 3-207, 3-209, 3-210, 3-211, 4-5, 4-10, 4-15, 4-17, 4-21, 4-29, 4-32

wildland urban interface (WUI), x, xvi, 1-7, 1-8, 2-4–2-7, 2-16, 2-20, 2-25, 3-3, 3-8, 3-10, 3-15, 3-22, 3-40, 3-49, 3-67, 4-10

Wildlife, xvi, 2-14, 2-44, 3-1, 3-25, 3-50, 3-52, 3-54, 3-55, 3-57, 3-59, 3-61, 3-73, 3-89, 3-92, 3-123, 3-166, 3-170, 3-212, 3-214, 4-2–4-5, 4-13, 4-14, 4-18–4-22, 4-24–4-27, 4-30–4-35

woody debris, 2-8, 2-9, 2-32, 2-34, 2-36, 3-13, 3-41, 3-89, 3-101, 3-105, 3-140, 3-141, 3-142, 3-211, 3-213, 4-7, 4-8, 4-13

yarding, 2-31, 2-33, 3-66, 3-155